

## Chromosome numbers in Western Australian Plants, I.

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### Abstract

Chromosome numbers for 33 species are given. The counts on *Acanthocarpus* (n=16), *Billardiera* (n=12), *Macgregoria* (n=10), *Muiriantha* (n=14), *Sollya* (n=12) and *Tricoryne* (n=28) are first records for these genera.

### Introduction

The flora of Western Australia is poorly known in most aspects of its biology and classification. Chromosome numbers are available for less than 5% of the species of angiosperms occurring in the region, and the majority of such counts are from a single locality. The aim of this series is to add to the number of available counts, especially in neglected groups. This report deals with species collected from a number of widely scattered localities, including a series collected in the North West Cape region during 1976.

### Materials and methods

Buds were fixed in Bradley's (1948) fixative, stained in Snow's (1963) acid-alcoholic carmine for 4-7 days, then squashed in 45% acetic acid to observe pollen mother cell meiosis. Slides were made permanent by removing the coverslip in absolute alcohol and remounting in euperal. At least 5 cells were counted before the count was accepted.

### Results

Chromosome numbers, details of collection localities and vouchers are given in Tables 1 and 2. Vouchers are deposited in K.P. (King's Park) and PERTH.

### Discussion

Table 1.—Turner (1966) reported n=9, 10, 15 and 16 for five species of *Stackhousia*, the only other genus of the family Stackhousiaceae. Until further cytological and taxonomical work is undertaken on this genus, possible relationships between the monotypic *Macgregoria* (n=10) and the species of *Stackhousia* which are n=10 (*S. huegelii* and *S. aff. georgei*) cannot be ascertained.

The count on the *Logania* sp (n=8) is the first diploid count for the genus, the only previous count was n=16 for *L. flaviflora* by Keighery (1975). This suggests that n=8 is the basic number for the genus.

The finding of n=14 for the monotypic *Muiriantha* reflects its close relationship to *Chorilaena* (n=14) and its placement in the Sub-tribe Nematolepidinae (Smith-White, 1954) is further substantiated.

Almost nothing has been published on the cytology of Australian Pittosporaceae, so it is difficult to comment on the new records for *Sollya* (n=12) and *Billardiera* (n=12).

Table 2.—Sands (1975) in her study of the cytoevolution of the Australian Fabaceae found polyploidy to be rare (14 of 242 species examined) and concluded it to be of little significance for the tribe Podalyrieae (the major group of Australian peas). However, the tribe Cotuleae (the arid zone peas) including *Swainsonia* contains only polyploid species. This suggests that polyploidy may not have been of major evolutionary significance to woody temperate species, but is probably of major significance to Eremean herbaceous species.

The two counts recorded for the genus *Tephrosia*, n=8 for *T. purpurea* by Sands (1975) and n=11 for *T. flamea* are strikingly different. Further studies are needed on this genus.

All counts recorded for the three species of Liliaceae are at the tetraploid level. Related taxa in southern Western Australia show n=8 (*Acanthocarpus*) and n=14 (*Tricoryne*) (Keighery, unpub. data).

### References

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**Table 1**  
*Miscellaneous species*

Taxon	N	Locality	Voucher <sup>1</sup>
<b>Proteaceae</b>			
<i>Adenanthos detmoldii</i> F. Muell.	13	Scott River	GK. 599
<i>Franklandia fucifolia</i> R. Br.	14	30 km W. Israelite Bay	GK. 220
<i>Personia aricularis</i> F. Muell.	7	6 km N. Cockleshell Gully	GK. 588
<i>P. aff. comata</i>	7	20 km E. Jurien Bay	GK. 576
<i>P. saccata</i> R. Br.	7	King's Park	F. 109
<b>Stackhousiaceae</b>			
<i>Macgregoria racemigra</i> F. Muell.	10	85 km N. Mt. Newman	D. 4397
<b>Loganiaceae</b>			
<i>Logania</i> sp.	8	16 km E. Mt. Hampton	GK. 36
<b>Pittosporaceae</b>			
<i>Billardiera coriacea</i> Benth.	12	8 km S. Ongerup	GK. 159
<i>Sollya heterophylla</i> Lindl.	12	Albany	GK. 169
<b>Rutaceae</b>			
<i>Muiriautha hassellii</i> C. A. Gard.	14	Stirling View Pass Road	GK. 186
<i>Philothea tubiflora</i> A. S. George	14	50 km N.E. Laverton	GK. 522
<b>Fabaceae</b>			
<i>Daviesia acanthocolona</i> F. Muell.	9	142 km E. Kalgoorlie	GK. 535
<i>Kennedia prorepens</i> F. Muell.	11	60 km W. Neale Junction	GK. 567
<b>Goodeniaceae</b>			
<i>Velleia connata</i> F. Muell.	8	60 km S. Neale Junction	GK. 553
<b>Brunoniaceae</b>			
<i>Brunonia australis</i> R. Br.	9	60 km S. Neale Junction	GK. 547
<b>Asteraceae</b>			
<i>Podolepis capillaris</i> (Steetz) Diels	3	Pioneer Rock S. of Balladonia	GK. 192
<i>Cotula coronopifolia</i> L.	10	Old Chittering Townsite	GK. 55

<sup>1</sup>GK—author, D—Demarz, F—Fairall.

**Table 2**  
*Northern species*

Taxon	N	Locality	Voucher <sup>1</sup>
<b>Fabaceae</b>			
<i>Atylosia cinerea</i> (F. Muell.) Benth.	11	20 km N. Nanutarra	GK. 793
<i>Brachysema aphyllum</i> Hook. (erect form)	8	5 km S. Paynes Find	GK. 798
<i>Brachysema macrocarpum</i> Benth.	16	72 km N. Minilya to Exmouth	GK. 812
<i>B. macrocarpum</i>	16	8 km S. Vlaming Head	GK. 823
<i>Isotropis atropurpurea</i> F. Muell.	6	12 km S. Bullara	GK. 827
<i>Jacksonia</i> sp.	9	5 km S. Paynes Find	W. 1779
<i>Lotus cruentus</i> Court	14	39 km S. Learmonth	GK. 820
<i>Psoralea</i> sp.	11	53 km S. Learmonth	GK. 819
<i>Swainsonia kingii</i> F. Muell.	16	4 km S. Vlaming Head	GK. 822
<i>Swainsonia occidentalis</i> F. Muell.	16	50 km N. Minilya to Exmouth	GK. 802
<i>Tephrosia flamea</i> (F. Muell.) Benth.	11	2 km S. Binthalya	W. 1795
<i>Templetonia egena</i> (F. Muell.) Benth.	8	202 km S. Cobra Station Homestead	W. 1750
<b>Brassicaceae</b>			
<i>Stenopetalum robustum</i> Endl. var. <i>pedicillare</i> (F. Muell.) Shaw	5	50 km N. Minilya to Exmouth	GK. 801
<b>Asteraceae</b>			
<i>Brachycome iberidifolia</i> Benth.	9	50 km N. Minilya to Exmouth	GK. 803
<b>Liliaceae</b>			
<i>Acanthocarpus</i> sp.	16	Coral Bay Turnoff	GK. 816
<i>Tricoryne</i> sp.	28	72 km N. Minilya to Exmouth	GK. 814

<sup>1</sup>GK—author, W—Wittwer.